

FINAL PROJECT REPORT

NASA Airborne Astronomy Grant NAG 2-134

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Two activities were undertaken by NASA grant NAG 2-134: [1] detailed study of the infrared emission from irregular and SO (lenticular) galaxies and [2] service on the working group for the *Stratospheric Observatory for Infrared Astronomy* (SOFIA).

1. The Infrared Emission from Irregular & Lenticular Galaxies

Gas-rich irregular galaxies are the most abundant star-forming galaxy in the local Universe. As a consequence, these objects are prime targets for studying the cool interstellar medium via infrared dust emission with the Kuiper Airborne Observatory (KAO). Over several years, using the Yerkes Observatory imaging systems of D A Harper, we mapped the far-infrared ($\lambda \approx 50 - 200 \mu\text{m}$) emission from several bright irregular galaxies, notably NGC 4214 (Thronson et al. 1988, ApJ, 334, 605), NGC 4449 (Thronson et al. 1987, ApJ, 317, 180), and NGC 1569 and 3593 (Hunter et al. 1989, ApJ, 341, 697). We also undertook observations of "targets of opportunity," such as the interacting galaxy pair NGC 4485/4490 (Thronson et al. 1989, ApJ, 339, 803).

In addition, we also mapped the long-wavelength dust emission from SO (lenticular) galaxies, which had not been thought to possess significant amounts of either gas or dust. Our work on this topic appears mainly in Thronson et al. (1989, ApJ, 344, 747).

Primarily collaborators on this project include D A Hunter (Lowell Observatory) and D A Harper (Yerkes Observatory). M A Greenhouse (now at the Air & Space Museum) received his PhD while supported by this project.

2. The SOFIA Science Working Group

The SOFIA Science Working Group advises and supports the Project Office for this program. Our primary duties include evaluation of the success of aircraft designs in meeting the scientific goals of the project, as well as liaison with the scientific community. As required or requested, we give colloquia and other presentations, prepare written descriptions of the project, and discuss the mission with appropriate constituencies.

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